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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,601	07/07/2003	John R. Grassi	GISZ 2 00031	7816
27885	7590	04/18/2005	EXAMINER	
FAY, SHARPE, FAGAN, MINNICH & MCKEE, LLP 1100 SUPERIOR AVENUE, SEVENTH FLOOR CLEVELAND, OH 44114			LIN, ING HOUR	
			ART UNIT	PAPER NUMBER
			1725	
DATE MAILED: 04/18/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/614,601

Applicant(s)

GRASSI ET AL.

Examiner

Ing-Hour Lin

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) 27-46 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/03, 2/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-26, drawn to a process for the casting of metal and a process for reducing the cooling time of a metal that has been cased, classified in class 164, subclass 131.

II. Claims 27-46, drawn to an apparatus for delivering a solvent to a mold during the casting of metals and a molding device, classified in class 164, subclass 344.

The inventions are distinct, each from the other because of the following reasons:

2.

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the casting process and related cooling the mold can be practiced by another materially different apparatus such as cooling bath held in a quenching tank.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with attorney Jay F. Moldovanyi on January 24, 2005 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-

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26. Affirmation of this election must be made by applicant in replying to this Office action.

Claims ~~26~~²⁷-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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8. Claims 1-5 and 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challand in view of Carter et al and Pineda et al.

Challand (col. 3, lines 7+) teaches the claimed process for casting metals by using a water dispersible mold composed of water-soluble binder including polyphosphate chains and /or borate ions and silica sand for the purpose of easily removing moving the casting from the mold after casting (col. 9, lines 45+) with water.

Challand fails to teach the use of rapid cooling and removing or cracking a portion of the water dispersible mold. However, Carter (col. 2, lines 47+) teaches the use of rapid cooling such as simultaneous molten metal pouring and immersion cooling for the purpose of forming a fine grain and reducing oxidation pitting for the casting. Pineda et al (col. 6, lines 28+) teach the use of dropping the mold into water in order to remove or crack a portion of the water dispersible mold. It would have been obvious to one having ordinary skill in the art to provide Challand the use of rapid cooling and removing or cracking a portion of the water dispersible mold as taught by Carter et al and Pineda et al in order to reduce cycle time of casting and refine the grain size.

9. Claims 6-15 and 20-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Challand in view of in view of Carter et al and Pineda et al and further in view of Sahari or Conroy et al.

Challand in view of Carter et al and Pineda et al fails to teach the use of water nozzle or the re-use of binder. Sahari (col. 6, lines 24+) teaches the use of nozzles (water jet, water-steam jet) and submerging the mold into water and separating the molding granules from binder for the purpose of cooling and removing casting from the mold and for re-using the binder agent.

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Conroy et al (col. 4, lines 19+) teach the use of nozzles 20 and flow rate and pressure of fluid including water and surfactant for the purpose of removing cores from castings. It would have been obvious to one having ordinary skill in the art to provide Challand in view of in view of Carter et al and Pineda et al the use of controlling the use of water nozzle or the re-use of binder as taught by either Pineda et al, Sahari or Conroy et al in order to effectively cool the casting in the molten state and remove it from the casting mold and re-use the binder.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (8:00-5:30) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

I-H L.

I.-H. Lin

4-6-05

KEVIN KERNS
PRIMARY EXAMINER

Kevin Kerns 4/15/05